Department of
PATHOLOGY

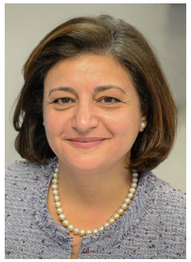
DALHOUSIE UNIVERSITY

Preparing for a Positive Future

2025 ANNUAL REPORT

MESSAGE FROM THE DEPARTMENT HEAD

Preparing for a positive future



In 2025, our department continued to adapt to a changing health-care landscape. As demand for laboratory testing grows and new technologies reshape how we diagnose disease, we remain focused on delivering timely, high-quality services while preparing responsibly for the future.

On the education front, I am very pleased that our new training program for clinical lab scientists received national accreditation from the Canadian College of Medical Geneticists (CCMG) in 2025. This milestone reflects several years of dedicated work by Dr. Karen Bedard and her colleagues to develop a curriculum and practical framework that allows us to train clinical lab scientists with specialized expertise in genetic testing here in Halifax. As molecular testing expands, we must build local expertise to support these highly specialized services.

We also introduced three summer scholarships for undergraduate and medical students. These scholarships give students an opportunity to explore pathology through research projects and clinical exposure. Building interest early is essential if we want to maintain a strong pipeline of future scientists and pathologists.

In clinical services, we made several meaningful improvements this year. We are moving forward with the implementation of liquid-phase cytology for cervical cancer screening in the Central Zone, for example. Stabilizing tissue samples in liquid, rather than smearing them on a slide, allows us to detect human papillomavirus (HPV), even before cancerous changes appear. This provides earlier identification of cervical cancer risk. Samples that test negative for HPV do not need further testing, so this also streamlines testing workflows.

Another technical advancement was our pilot project in digital pathology. By digitizing images from glass slides, we can zoom in to examine finer details of each specimen. Digital imaging also allows easier consultation between pathologists and positions us well for future use of artificial intelligence advances in diagnostic pathology.

Through expanded staffing and operational adjustments at our blood collection sites in Central Zone, we reduced average wait times for blood work from approximately three weeks to about one week.

Within our hospitals, we streamlined blood collection services so that physicians receive results sooner and can make discharge decisions earlier in the day. This reduces unnecessary time in hospital and improves access to beds.

The launch of the One Patient, One Record (OPOR) system at IWK Health in December was another important step forward. As OPOR rolls out across the province in 2026, laboratory results from all hospitals in Nova Scotia will be available within a single electronic record for each patient. This will support more coordinated care and better information sharing among clinicians.

On the research side, the NS Health Biobank has continued to expand. Through strong collaboration with clinicians and the dedicated work of research staff who obtain patient consent, we have significantly increased the number of cancer specimens available for study. This strengthens our research capacity and supports high-impact projects across the province and with our national collaborators.

This year, we recognize the retirement of Dr. Alex Easton after many years of service in the Division of Anatomical Pathology. I thank him sincerely for his contributions to our department and to patient care. I am also pleased to welcome Dr. Cornelia Thoeni, Dr. Mariya Kuk and Dr. Ashlyn Fong to Anatomical Pathology, and Dr. Alaa Abdelrazik to Clinical Chemistry. Their expertise will further strengthen our clinical and academic programs.

As we look ahead, our priorities remain clear: to deliver timely, accurate diagnostic services, to invest in education and workforce development, and to continue modernizing our systems in support of patient care. I remain grateful for the steady commitment and professionalism of our faculty, staff and learners. Their work makes this progress possible.

Dr. Irene Sadek
Head, Department of Pathology

CLINICAL WORKLOAD

18,037,729 TESTS

1,488,389 BLOOD COLLECTIONS*

PEOPLE

109 PRIMARY FACULTY
12 CROSS-APPOINTED FACULTY
6 ADJUNCT FACULTY

752 NSHA TECHNICAL STAFF
152 IWK TECHNICAL STAFF
236 NEW BRUNSWICK TECHNICAL STAFF

RESIDENTS

31 RESIDENTS & FELLOWS

14 DIAGNOSTIC & MOLECULAR
7 DIAGNOSTIC & CLINICAL
7 HEMATO-PATHOLOGY
3 MEDICAL MICROBIOLOGY

GRADUATE STUDENTS

37 GRADUATE STUDENTS & POSTDOCTORAL FELLOWS

12 MSc
13 PhD
12 PDF

RESEARCH STATISTICS

140 PUBLICATIONS

$5,294,620 GRANT CAPTURE

*EXCLUDES NEW BRUNSWICK

Dr. Victor Martinez and Dr. Karen Bedard

EDUCATION FEATURE

Genetics takes centre stage in new education programs

Department of Pathology members are leading three major education initiatives designed to increase capacity for human genetics and genomics research and clinical investigation in the Maritimes.

CCMG fellowship program to train clinical lab scientists

As the number and complexity of genetic tests continues to expand globally, the Department of Pathology, NS Health and IWK Health have joined forces to launch a new training program designed to build capacity to meet the growing demand.

"Personalized, precision medicine is the future of medicine, but it requires sophisticated genetic and genomic testing," says Dr. Karen Bedard, a clinical lab scientist at IWK Health and associate professor in the Department of Pathology who is spearheading the new program. "This means we need more clinical lab scientists with advanced expertise in human genetics and genomics testing and analysis."

The new two-year subspecialty program will qualify graduates to be certified fellows of the Canadian College of Medical Geneticists (CCMG) upon successful completion of the CCMG national certification exam. MDs and PhDs are eligible to apply.

"Clinical lab scientists with genetics expertise are in short supply and there is a growing demand globally," says Dr. Heleen Arts, a clinical lab scientist at the IWK and associate professor in the Department of Pathology who played a key role in creating the curriculum for the new CCMG program. "Rather than sending people to an external CCMG program, we decided we must mobilize to offer the accredited training here."

The program will begin accepting learners early in 2026, and will take up to two new students a year. Graduates will fill an important and growing gap in the health-care system.

"There is an explosion of new technologies and increasingly complex tests in human genetics and genomics, and we will need more qualified people to interpret and report genetic test results to medical geneticists and other specialists," says Dr. Bedard. "Our CCMG graduates will be experts in genetics, including next-generation genome sequencing and cytogenetics techniques such as genome mapping, microarray and karyotyping."

Dr. Bedard has been working with Dr. Arts, Dr. Jo-Ann Brock, medical director of Precision Medicine at the IWK, and Dr. Tanya Gillan, a clinical lab scientist at NS Health, for nearly three years to develop the CCMG program.

> *"Personalized, precision medicine is the future of medicine, but it requires sophisticated genetic and genomic testing."*
>
> **DR. KAREN BEDARD**

The addition of this program to Dalhousie's offerings will help attract and keep qualified professionals in the region.

"Karen Bedard had the vision and has been a strong leader in putting this program together," notes Dr. Arts. "She has served as chair of the CCMG accreditation committee, so she brought a deep understanding of the requirements to this initiative and was able to support the rest of us to do our parts."

"Mainstreaming" equips clinicians to provide genetic testing

Increasing the numbers of lab scientists qualified to run genetic tests is one vital part of building capacity for precision medicine. The other essential aspect of this equation is to increase the numbers of clinicians with the necessary expertise to order these tests. That's why members of the Department of Pathology have teamed up with other colleagues at the IWK and NS Health to launch a new "mainstreaming" initiative, *Introduction to Genetic Testing*.

"*Introduction to Genetic Testing* provides specialists outside the field of medical genetics with the knowledge they need to provide pre-test counselling, order the correct genetic tests, and interpret the results for their patients," says Dr. Brock. "It's a continuing professional development opportunity that empowers specialists to order genetic testing within their scope of practice."

The self-paced online course is free to clinicians, who earn 3.5 CME credits upon completion of eight modules and a test. With this credential in hand, physicians in specialties other than medical genetics can order genetic testing panels within their specialty directly, saving patients and their families months or even years of waiting for vital knowledge.

INTRODUCTION TO GENETIC TESTING

MODULE 1: Introduction to Clinical Genomics in the Maritimes
Evolution and availability of testing

MODULE 2: Genetics Concepts
Inheritance patterns, penetrance, epigenetics

MODULE 3: Genetic Testing Technology & Interpretation
Capabilities and limitations, classifying and scoring variants, interpreting results

MODULE 4: Pre-test Counselling
Collecting and assessing family history, determining if and what tests are needed

MODULE 5: Pre-test Counselling & Informed Consent
Discussing risks and benefits with patients and families

MODULE 6: Ordering Genetic Tests
Specific instructions for test selection, requisitions, samples, timing

MODULE 7: Reading & Reporting Results
Interpreting and sharing results and implications

MODULE 8: Post-test Counselling
Advising patients and families on next steps and therapeutic options

"There is so much more that clinicians need to understand in order to select the most appropriate tests for their patients these days," Dr. Brock explains. "Not only are more tests available, but each test can now evaluate as many as 50 to 200 genes, or even an entire exome. So we've gone from tests for a single gene to tests that represent all known relevant genes for any given disorder. This is a huge increase in complexity."

While Dr. Brock played a high-level advisory role, lab scientist Dr. Karen Bedard, data scientist Dr. Victor Martinez, and genetic counsellors Jimena Prado, Andrea Rideout and Michelle Lane, developed the course and rolled it out to a pilot cohort of cardiologists in 2025, before making it available to specialists in every field.

Introduction to Genetic Testing is designed to be completed quickly and easily. "Each of the eight modules consists of a 30-minute audio recording and transcripts, so clinicians can do the whole course over a weekend," says Ms. Prado. "It covers basic as well as advanced material, so everyone gains a common baseline understanding of the terminology and procedures."

Graduate program to train next generation of genetics researchers

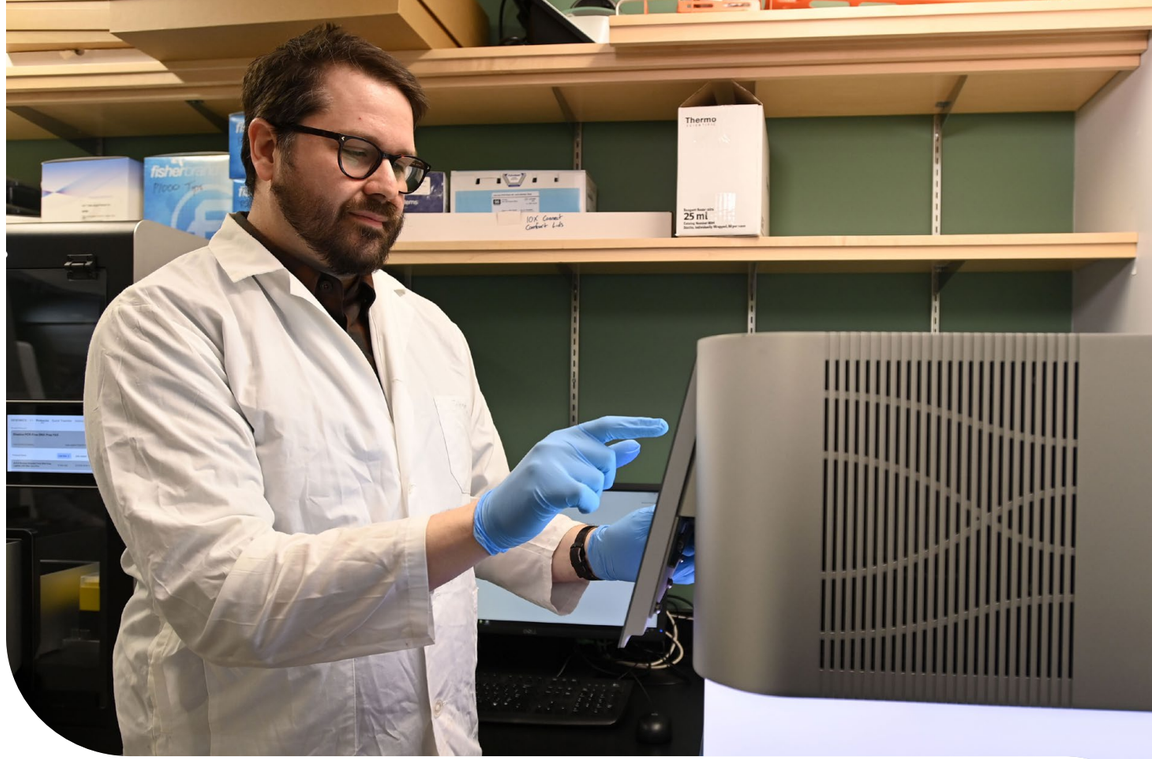
A new graduate program in human genetics and genomics is in the works in the Department of Pathology. The Faculty of Medicine, Faculty of Graduate Studies and Dalhousie University's Senate have approved the program in principle, and are expected to approve the detailed logistics, curriculum and resourcing in 2026. The final stamp of approval will come from the Maritime Provinces Higher Education Commission.

"We are strong in genetics research at Dalhousie, but since we don't have a genetics department or a specific graduate program, this has been a hidden strength," says Dr. Karen Bedard, who is leading the charge to launch this new program. "Once approved, the new graduate program will highlight, enhance and grow our ability to pursue focused research in human genetics."

The Human Genetics and Genomics graduate program will be housed within the Department of Pathology, due in large part to the increasingly central role of genetics in clinical testing and therapeutic interventions, particularly in the realm of cancer. It will operate alongside the existing more general pathology graduate program, as an option for master's and PhD students seeking a deep dive into genetics research.

"Students are constantly requesting to do their graduate studies research projects with our basic scientists in the Department of Pathology, all of whom are leading projects that intersect with human genetics," says Dr. Dan Gaston, a data scientist and assistant professor in the Department of Pathology who is working with Dr. Bedard to develop the program. "Once this program is operational, it will enable our faculty supervisors to acquire more funding for genetics projects, as they will have the formal structure supporting the graduate students who are essential for the conduct of research."

The new graduate program will emphasize ethical, legal and societal issues around genetic testing, and the role of AI and machine learning in genetic and genomic data analytics. Drs. Bedard and Gaston anticipate that roughly half of the 20 to 30 graduate students in the Department of Pathology (at any given time) will select the genetics program option.



Dr. Dan Gaston

> *"We are strong in genetics research at Dalhousie, but since we don't have a genetics department or a specific graduate program, this has been a hidden strength."*
>
> **DR. KAREN BEDARD**

Tasha Ramsey, Dr. Todd Hatchette and Ashley Joy

CLINICAL FEATURE

STI self-testing takes off in Nova Scotia

A new initiative is expanding access to timely care for STIs in Nova Scotia.

Nova Scotians are no longer required to see a doctor or visit a clinic to access testing for common sexually transmitted infections (STIs). Thanks to the *STI Care Now* initiative, anyone over the age of 15 can pick up or order a testing kit, collect the samples themselves, and either mail or drop them off at a specimen collection centre in their community for testing in NS Health's lab.

STI Care Now began as a pilot project in Halifax and Truro in 2024, offering testing and treatment for the most common bacterial infections—chlamydia and gonorrhea—using self-collected samples. Part of Nova Scotia's Emerging and Re-emerging Infections Network (ERIN), *STI Care Now* has since expanded to cover the entire province and include HIV pre-exposure prophylaxis and point-of-care tests for HIV. In 2026, the initiative will expand further to include doxycycline post-exposure prophylaxis and testing for syphilis, using samples collected at blood-collection sites within the province.

"All of the self-collected samples end up at the Microbiology Lab in Halifax for analysis," says Dr. Todd Hatchette, director of the Division of Microbiology, noting that the lab has received samples from more than 4,500 STI self-testing kits since *STI Care Now* launched in 2024. "The lab then sends the results to the pharmacy team, who follow up with the person."

"The testing kits are customized to each individual's situation, based on the information they provide when they fill out the self-referral form, either online, in person or by phone," explains Tasha Ramsey, a pharmacist with NS Health and pharmacy clinical lead for emerging and re-emerging infections. "When we get the results from the lab, we email people with negative results, and we phone people with positive results. If it's chlamydia, a pharmacist calls in the prescription to a pharmacy that's convenient for the person. If another infection is identified, we arrange for them to receive prompt treatment at a nearby clinic."

Pharmacists also advise people with positive results to abstain from sexual contact until they are treated, and to advise their partners to get tested as well. This helps to limit the spread of these infections and the downstream harms they cause, such as pelvic inflammatory disease and infertility in the case of chlamydia and gonorrhea, and neurologic complications, paralysis, blindness, and death in the case of syphilis.

"Sexually transmitted infections are all reportable to the government, it is essential that we monitor the incidence of STIs and create the systems that allow for prompt identification, treatment and containment," notes Dr. Hatchette. "The incidence of STIs is on the rise in Canada, especially among 15 to 25 year-olds, reflecting a global upswing."

STI self-testing kits are assembled based on information submitted in the online self-referral form.

In Nova Scotia, the combined rates of chlamydia, gonorrhea and syphilis have risen nearly 45 per cent since 2015. Chlamydia is by far the most prevalent, with 2,730 cases in 2023, up 29 per cent from 2015. In the same interval, gonorrhea rates rose 327 per cent from 84 to 359 cases, while syphilis surged 506 per cent from 17 cases to 103. *STI Care Now* is an important step toward flattening the curve and reducing STI rates in Nova Scotia.

"We have developed formal partnerships with community-based organizations to ensure our service represents the best interests of those at highest risk for STIs," notes Ashley Joy, project manager of *STI Care Now*,

Ashley Joy

naming the Health Equity Alliance of Nova Scotia, Mobile Outreach Street Health, Stepping Stone Nova Scotia, Healing Our Nations, and Sexual Health Nova Scotia as key collaborators. “They have helped us design the service and are informing their client bases.”

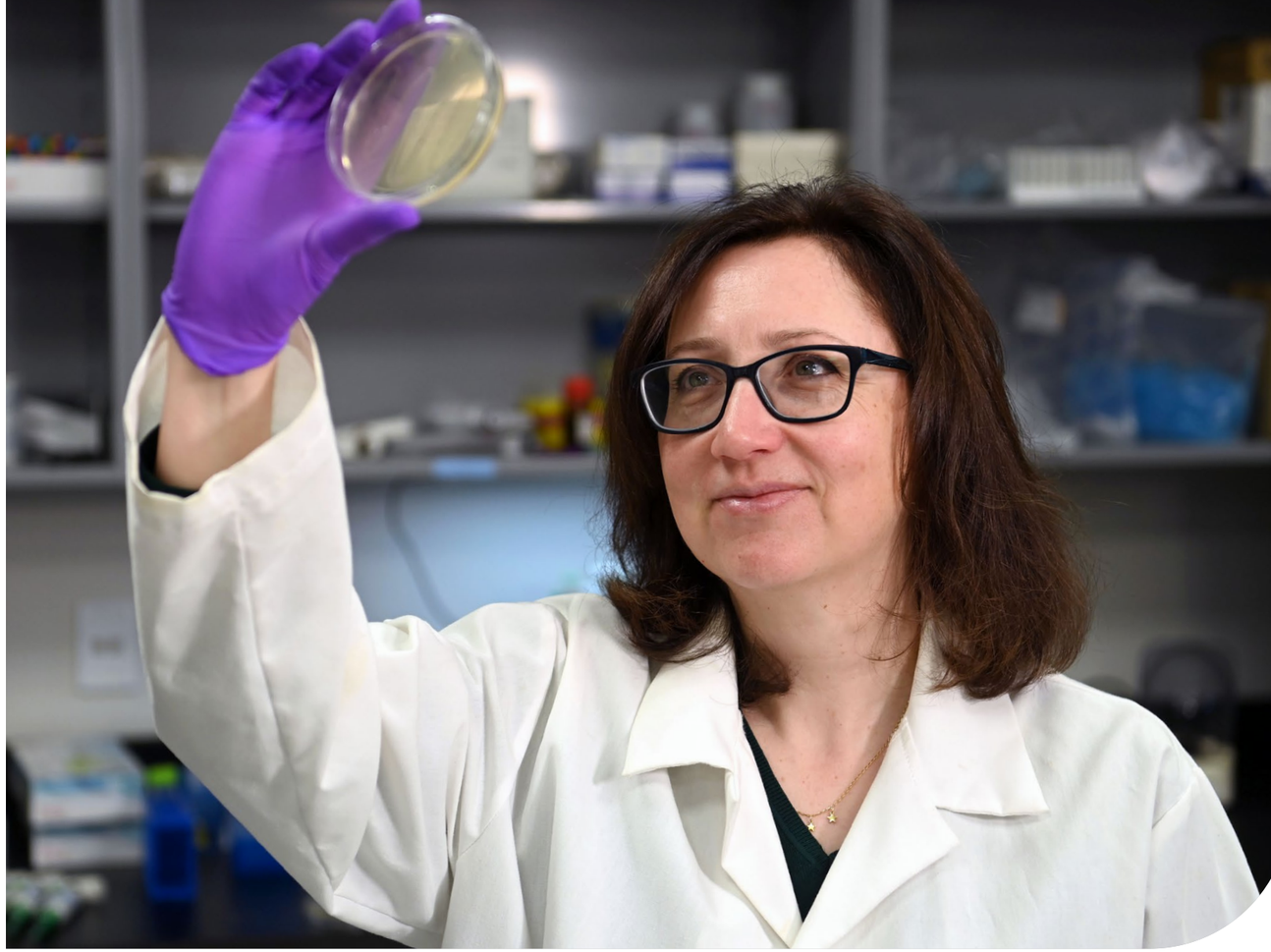
Depending on their circumstances, people who test positive have access to a patient navigator. “Receiving an STI diagnosis is not necessarily straightforward,” Ms. Joy explains. “The person may need additional support, if the infection was contracted through sexual assault, for example, or intravenous drug use. Our program’s patient navigator is trained in social work and connects individuals with additional providers and community supports. We are focused on wraparound care that supports the person, not just the infection.”

Feedback from people using the service has been positive to date. “We did a formal evaluation of Phase One and received very positive feedback,” Ms. Joy says. “People are thankful for the confidentiality and convenience of the service, and how quickly they are able to access treatment and support.”

STI Care Now will continue to evolve over time. “We have workshops every few months to discuss how the project is unfolding and identify any improvements to make,” says Ms. Joy, who points to this project as a prime example of implementation science in action. “It began as a proof-of-concept project, supported by Nova Scotia Health Research and Innovation. It is now being run as a continuous quality improvement initiative.”

Anyone who wishes to access a self-testing kit can do so by visiting the website: **nshealth.ca/sti-care-now**

> *“People are thankful for the confidentiality and convenience of the service, and how quickly they are able to access treatment and support.”*
>
> **ASHLEY JOY**



Dr. Paola Marcato

RESEARCH FEATURE

Marathon of Hope meets major milestone

Researchers complete first phase of massive gene-sequencing and analysis effort.

Phase One of the largest cancer gene-sequencing effort in Canadian history is wrapping up in the first quarter of 2026, thanks to the dedicated efforts of researchers in the Department of Pathology, their local colleagues, and collaborators at universities and research centres all across the country.

“The Terry Fox Research Institute Marathon of Hope Cancer Centres Network is a massive Canada-wide research effort to advance precision oncology by uncovering the genetic and molecular mechanisms that drive cancer,” says Dr. Gillian Bethune, an associate professor in the Department of Pathology and medical director of the NS Health Biobank, which plays a crucial role in the research. “Our goal in Atlantic Canada for Phase One is to provide tissue samples for sequencing, along with clinical data, for 1,300 cancer cases. We are on target to accomplish this by the end of March 2026.”

Launched in 2023 with funding from the Terry Fox Research Institute, Health Canada, and matching funds from local partners all across Canada, the first phase of this Marathon of Hope project aims to collect and analyze genetic, clinical and sociodemographic data from a total of 15,000 cancer patients, including the 1,300 from Atlantic Canada.

“We’re calling this national group of 15,000 ‘the Gold Cohort,’” says Dr. Robin Urquhart, associate professor in Dalhousie’s Department of Community Health & Epidemiology and principal investigator for the Nova Scotia arm of the Marathon of Hope Cancer Centres Network. “We are assembling a national data resource and administrative structure that allows us to share data, samples and expertise across provinces and institutions. Dozens of spinoff studies will lead to new diagnostics, precision treatments and deep insights about cancer and its impact in Canada.”

The NS Health Biobank has submitted samples from breast, brain, colorectal, pancreatic, and multiple myeloma cancers, as well as healthy tissues from the same patients, for analysis and comparison. The affiliated QEII Lung Tumour Bank has also submitted tissues and clinical data.

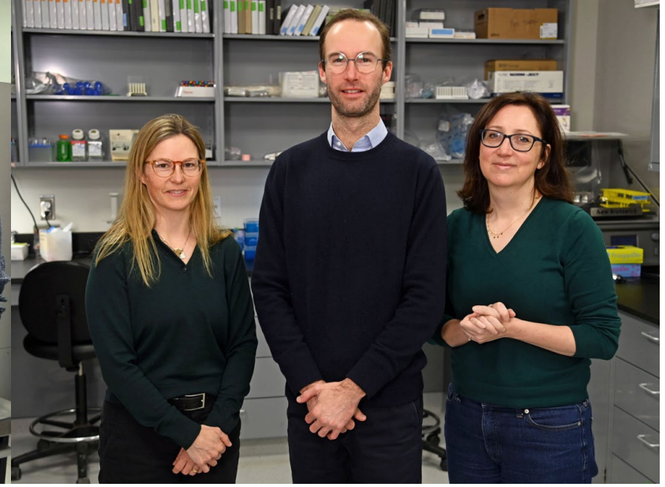
Dr. Robin Urquhart, Dr. Gillian Bethune and Laura Madden

These samples first go to the HistoCORE facility in Dalhousie’s Faculty of Medicine, where DNA and RNA is extracted and sent on to the Atlantic Cancer Research Institute (ACRI) in Moncton for sequencing. ACRI sends the sequencing data to Memorial University of Newfoundland for computational analysis. The refined data is then loaded onto national servers where all researchers in the network can access it for specific studies.

“It requires almost unimaginable computational power to refine the torrent of genetic data into usable information,” says Dr. Dan Gaston, a data scientist in the Department of Pathology. “There are six billion base pairs of genes in the human genome, and we have to look at every base pair in a tumour at least 100 times to gain statistical confidence in our analysis and identification of mutations. MUN has the computational capacity to do this.”

The collaboration with ACRI and MUN makes the gene-sequencing and data analysis possible, while the NS Health Biobank provides the necessary patient samples. “It’s a true regional collaboration,” notes Dr. Gaston. “It’s been a lot of work behind the scenes to establish the policies, procedures and approvals that enable this level of seamless coordination and data-sharing across institutions.”

Clinicians and clinical research assistants play an essential role in this effort. “Clinicians are pivotal,” says Dr. Bethune. “Surgical oncologists, for example, hire and oversee research assistants to obtain patients’ informed consent to having their surgically removed tissues sent to the biobank and added to the study cohort. Other clinicians obtain consent themselves. For clinical data collection, two research assistants are working full time in the biobank to add de-identified patient information to the records.”



Dr. Gillian Bethune, Dr. Greg Knapp and Dr. Paola Marcato

More than a dozen researchers in Dalhousie’s Faculty of Medicine are already pursuing spinoff projects using samples and data gathered through the Marathon of Hope project.

Dr. Paola Marcato, a professor in the departments of Pathology and Microbiology & Immunology, is working with 255 breast cancer samples secured for the project with the assistance of Dr. Bethune and surgical oncologist Dr. Greg Knapp at IWK Health’s breast health clinic.

“We are studying the composition of tumours, using multiplex immunofluorescence technology that allows us to quantify the different types of immune cells, fibroblasts, and other key contributors to how a cancer progresses and responds to treatment,” Dr. Marcato explains. “This will allow us to identify new biomarkers, which could be used to diagnose, select treatment, or monitor how well a cancer is responding to therapy.”

The Marathon of Hope Cancer Centres Network will move into Phase Two later on in 2026, with $80 million in federal funding over four years. In this phase, findings from Phase One will begin to be applied to patient care.

“As we amass and analyze the genetic, demographic and clinical data, researchers hope to identify genetic and molecular patterns across different cancers and diseases,” explains Dr. Bethune. “This opens the door to the possibility of identifying new targets for treatment or even re-purposing existing drugs for different cancers. The ultimate goal is improved patient outcomes.”

While the Marathon of Hope project relies on cutting-edge genomic science and advanced computational analysis, Dr. Urquhart notes that its impact depends just as much on what happens beyond the lab.

Alongside national coordination of the study, she and her colleagues across Canada are connecting with communities to ensure that underrepresented populations are meaningfully included and that the data reflects the full spectrum of Canadian life.

“Cancer doesn’t occur in a vacuum,” she says. “By capturing detailed sociodemographic information alongside genetic and clinical data, we can begin to see larger patterns—patterns that help us understand not only the biology of cancer, but how social context shapes risk, diagnosis and outcomes.”

SPINOFF STUDIES

Dalhousie researchers and clinicians are tapping the Marathon of Hope data to explore many aspects of precision medicine for a wide array of cancer types.

DR. AMY TROTTIER & DR. GRAHAM DELLAIRE
Blood cancers and multiple myeloma

DR. GRAHAM DELLAIRE, DR. VICTOR MARTINEZ, DR. ALISON WALLACE
Lung cancer

DR. JEANETTE BOUDREAU
Predictors of response to immune therapies

DR. ADRIENNE WEEKS
Glioblastoma

DR. PAOLA MARCATO, DR. GILLIAN BETHUNE, DR. GREG KNAPP, DR. PAT MURPHY (UPEI)
Breast cancer

DR. JEANETTE BOUDREAU & DR. RILEY ARSENAULT
Pancreatic cancer

DR. ZHAOLIN XU & DR. MICHAEL CARTER
Liquid biopsy in lung cancer diagnosis

DR. MANAL ELNENAEI & DR. TONY REIMAN
Multiple myeloma

SPECIAL FEATURE

Pathology leads **high-impact sustainability** efforts

Over the past several years, Department of Pathology members have spearheaded a range of sustainability efforts that are reducing medical waste, saving time and money, streamlining processes, and shrinking the carbon footprint of laboratory operations within the department and beyond.

“Health care is a significant polluter, contributing to five per cent of Canada’s greenhouse gas emissions,” says Dr. Laurette Geldenhuys, a professor in the Division of Anatomical Pathology who has led a number of these go-green projects. “Labs must also dispose of enormous amounts of plastic waste, as well as human tissues and toxic substances such as the formalin we use to fix specimens for examination.”

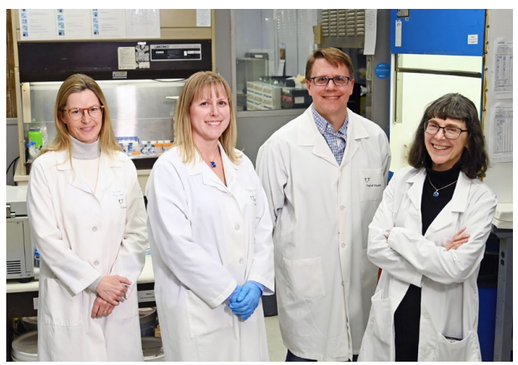
Dr. Geldenhuys led the first wave of lab sustainability projects by signing up her team in the Cytopathology Section of Anatomical Pathology for My Green Lab certification in 2023. My Green Lab is an international organization dedicated to raising environmental standards in laboratories worldwide.

“We conducted a detailed survey of our processes and procedures for My Green Lab, which reviewed and scored our performance and provided us with in-depth feedback, which we had one year to implement,” Dr. Geldenhuys explains. “Based on our improvements, they awarded us gold-level certification—a strong result for a first-time clinical lab submission.”

This pilot project in Cytopathology inspired Anatomical Pathology to pursue funding from CASCADES, a federal effort to encourage Canadian health systems to pursue climate-friendly improvements. This funding enabled the entire Anatomical Pathology Lab to upgrade the sustainability of its operating procedures and attain the highest level of certification offered by My Green Lab: green-level certification.

“We learned so much in this process, led by quality assurance technical specialist Maxine Adams-Small, that CASCADES supported us to develop national guidelines for improving the sustainability of pathology labs across Canada,” Dr. Geldenhuys says. “Since presenting these guidelines internationally, a European working group has asked us to collaborate with them to advance sustainable laboratory practices globally.”

These are not the only national sustainability guidelines to emerge from the Division of Anatomical Pathology in recent years. In a separate effort with Choosing Wisely to exempt more surgically removed tissues from clinically



Dr. Gillian Bethune, Tracy Watts, Glenn Henderson and Dr. Laurette Geldenhuys are key contributors to sustainable lab initiatives.

Dr. Laurette Geldenhuys

insignificant testing and reporting requirements, the division reduced the flow of operating room specimens to the lab by 10 per cent. This seemingly modest reduction saved more than $30,000 in material costs in just one year, in addition to countless hours of lab staff and pathologist time. Based on these results, IWK pathologist and assistant professor Dr. Erica Schollenberg developed new national guidelines for this aspect of sustainable anatomical pathology.

Dr. Gillian Bethune led another sustainability project aimed at reducing the volume of special medical waste. Special medical waste requires time-consuming sorting and energy-intensive incineration or autoclaving. She and her colleagues discovered that much of the material being treated as special medical waste did not actually meet those criteria and could instead be disposed of safely through standard municipal waste management protocols.

These efforts are part of a growing emphasis on sustainable laboratory practices within the Department of Pathology, Dalhousie University, and the Nova Scotia health-care system.

> *“Based on our improvements, [My Green Lab] awarded us gold-level certification—a strong result for a first-time clinical lab submission.”*
>
> **DR. LAURETTE GELDENHUYS**

“We are encouraging all clinical and research labs in the Faculty of Medicine and affiliated hospitals to adopt Dalhousie University’s sustainable lab certification program, and we are sharing our findings with senior leaders at NS Health,” Dr. Geldenhuys says. “Our efforts are made easier by tremendous support from Dr. Martin Bullock, head of the Division of Anatomical Pathology, and Dr. Irene Sadek, head of the Department of Pathology.”

DALHOUSIE UNIVERSITY

Department of Pathology
DIVISION REPORTS

Clinical Chemistry

CLINICAL FOCUS

In 2025, the Division of Clinical Chemistry managed a significant increase in demand, particularly for specialized laboratory tests performed both on site and through external referral. To help address this growth, the division hired a medical biochemist to support appropriate test utilization while contributing directly to daily laboratory operations.

The division also finalized contracts for new laboratory instrumentation supporting chemical and immunoassay testing across the five core laboratories in Central Zone. Planning is underway to replace aging equipment, including instruments that support testing for the entire province. These upgrades are expected to reduce downtime, improve turnaround times and enhance overall analytical quality.

In preparation for the upcoming One Patient, One Record (OPOR) system, division members contributed to planning related to laboratory ordering workflows, test-utilization management and the development of standardized order sets.

The division also validated and implemented a new gas chromatography–headspace system to replace aging equipment. This system supports provincial testing for toxic alcohols and plays a critical role in cases of suspected toxic alcohol poisoning.

EDUCATION ADVANCEMENTS

The Division of Clinical Chemistry continued its strong commitment to education in 2025. Faculty delivered the undergraduate/graduate course, *Biochemistry of Clinical Disorders*, in the fall of 2025. They also provided teaching and mentorship to residents in General Pathology and Endocrinology, as well as to medical students during pathology electives, clinical rotations and tutorials.

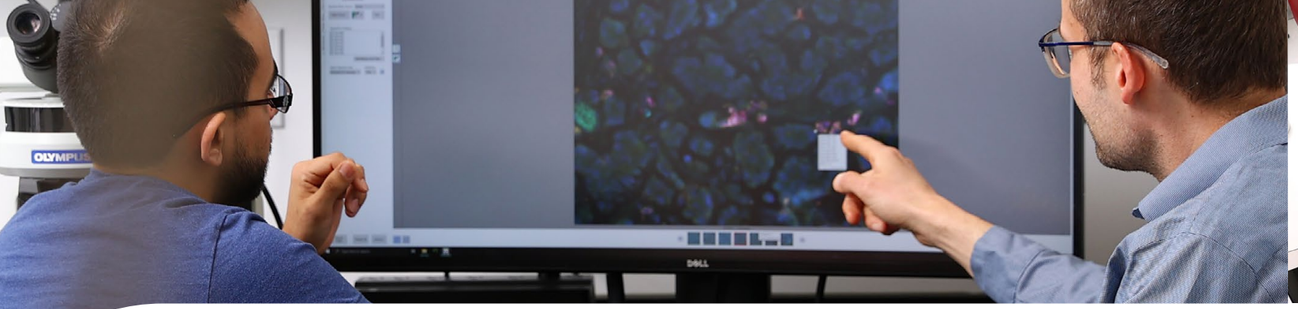
The division established an education committee dedicated to supporting the professional development of core laboratory technical staff. Through regular “lunch and learn” sessions and related initiatives, the committee promotes ongoing education, engagement and skill development among frontline laboratory staff.

RESEARCH DEVELOPMENTS

In 2025, the division continued to support both clinical and laboratory-based research through several collaborations. Work with the hepatology team focused on evaluating and publishing findings on emerging markers of liver fibrosis. In partnership with hematology colleagues, the division published results from a proteomics study examining outcomes in patients with multiple myeloma.

Division members also collaborated with the Canadian Society of Clinical Chemists’ special interest group to publish recommendations as part of the Choosing Wisely Canada initiative. Additional work with colleagues in British Columbia examined how laboratory services can contribute to health-care sustainability, including strategies to reduce resource use and support planetary health.

The division remains actively involved in the Atlantic Cancer Consortium through the Terry Fox Research Institute’s Marathon of Hope initiative. Sequencing of multiple myeloma cases using samples from the division’s biobank is ongoing.



Microbiology

CLINICAL FOCUS

The Division of Microbiology performed 881,064 tests in 2025. Specimen volumes continued to rise across most sections of the laboratory, increasing 25 per cent over pre-COVID levels.

The bacteriology laboratory continued to maximize the total laboratory automation (TLA) system and added screening plates for antibiotic-resistant organisms such as vancomycin-resistant enterococci (VRE) and carbapenem-producing Enterobacterales (CPE). Staff streamlined confirmatory pathways in response to a significant rise in VRE cases over the past year at the QEII and other hospitals across the province. The microbiology laboratory processed more than 23,000 VRE screening specimens in 2025, up from 14,700 the previous year. The next step in maximizing the TLA's potential will be developing machine-learning algorithms to release negative culture results automatically. Microbiology partnered with pharmacy, public health and community-based organizations on the collaborative *STI Care Now* initiative, which expanded access to STI testing across the province through self-sampling kits.

Instrument replacement was another major focus in 2025. The automated analyzer used for selected serology and immunopathology testing had reached end-of-life status and was replaced early in 2026. The laboratory also installed new blood culture instruments and microbial susceptibility and identification systems to meet growing capacity demands. Verification of these instruments will be completed in time for the launch of OPOR in Central Zone.

The clinical team also prepared for OPOR. Although the laboratory has used Cerner Millennium for many years, staff prepared for the transition to updated software and the launch of the new clinical information system, which will introduce new workflows across Central Zone.

EDUCATION ADVANCEMENTS

Microbiology contributes to teaching at all levels, including undergraduate, graduate and postgraduate programs at Dalhousie, as well as training technologists and laboratory assistants.

Dr. Ross Davidson continued to coordinate the Host Defence section of Med 1 and oversee a fourth-year clinical microbiology course. He also supervises two Research in Medicine (RIM) students and two Med 1 elective students. Dr. Glenn Patriquin supervised a fourth-year undergraduate student and a nursing student on research projects. Dr. Jason LeBlanc mentored one PhD student, three master's students and two honours students.

RESEARCH DEVELOPMENTS

Division members maintained strong research productivity in 2025. They collaborated with researchers and clinicians across Canada on topics including emerging and tick-borne infections, vaccine-preventable diseases, and antimicrobial resistance and stewardship. Division members published 22 peer-reviewed manuscripts and presented their work at national and international meetings.

OTHER HIGHLIGHTS OF 2025

Dr. LeBlanc's PhD student, Peter Robertson, received a Dalhousie Killam Scholarship supporting his stipend for up to four years, as well as a second scholarship from the Canadian Immunization Research Network. Dr. LeBlanc and co-supervisor Dr. Zhenyu Cheng also secured a MITACS grant of $266,667 to support Mr. Robertson's project, "Searching for Paths to Pan-pneumococcal Vaccines: Investigating Regulation and Phenotypic Expression of Capsular Polysaccharides in the Respiratory Pathogen *Streptococcus pneumoniae*."

Dr. Simms was selected as the sole Canadian participant in the Association of Public Health Laboratories Emerging Leader Program, which focuses on strengthening leadership skills, team development and collaboration among public health laboratory professionals.

AWARDS, HONOURS AND APPOINTMENTS

Ross Davidson was named Professor of the Year by Dalhousie medical students. Ross Davidson and Todd Hatchette were voted among the Top 10 of Med 1 lecturers, and Glenn Patriquin was voted among the Top 10 of Med 1 tutors.

Multiple division members participated in the *STI Care Now* initiative, which received the NS Health Excellence in Patient Experience Quality Award.

Anatomical Pathology

CLINICAL FOCUS

In 2025, the Division of Anatomical Pathology navigated significant personnel transitions while expanding clinical capacity. Dr. Alex Easton retired after 22 years of service as a neuropathologist. The division welcomed Dr. Cornelia Thoeni to fill the neuropathology vacancy while also contributing to liver and gastrointestinal pathology. Former resident Dr. Ashlyn Fong returned to practice gynecological pathology, and McGill graduate Dr. Mariya Kuk joined the division with a focus on genitourinary pathology.

The division acquired two new immunostainers, increasing capacity for routine immunohistochemistry and biomarker testing.

Digital pathology continued to expand in clinical practice. Eight pathologists now receive part of their workload through a fully digital workflow, including complex cases, immunohistochemistry and special stains. Small digital slide scanners were installed at Dartmouth General Hospital and the Halifax Infirmary to support remote frozen section consultations, and implementation and validation are underway.

EDUCATION ADVANCEMENTS

Dr. Cornelia Thoeni completed fellowships in liver/gastrointestinal pathology and neuropathology under the supervision of Dr. Sidney Croul. During her training, she developed a special interest in neurodegenerative diseases and became a board member of the Maritime Brain Tissue Bank. Together with Dr. Croul, she implemented online neuropathology teaching modules for Dalhousie residents and neurosurgery and neurology trainees.

The division also launched a pulmonary pathology fellowship under the leadership of Dr. Zhaolin Xu. The first fellow, Dr. Ricardo Gonzalez, began in November. The dermatopathology fellowship welcomed Dr. Jeff Fournier.

RESEARCH DEVELOPMENTS

Division members continued research across several areas. Dr. Xu and Dr. Michael Carter advanced their work on a liquid biopsy procedure for diagnosing lung cancer, resulting in a 2025 publication in *Cancers* on driver mutations and risk stratification in lung adenocarcinoma. Dr. Xu also continued research in multiomics and metabolomics with the Terry Fox Research Institute and other national collaborators.

The NS Health Biobank, led by Dr. Gillian Bethune, now houses specimens and clinical data from more than 4,000 cases spanning solid tumours, hematologic malignancies and benign conditions. Nearly 600 cases have been contributed to the Terry Fox Research Institute's Marathon of Hope project, part of a national effort to sequence more than 15,000 tumours.

Division members also published studies on breast cancer immunotherapy response and melanoma metastases, reflecting collaboration between clinical faculty and trainees.

OTHER HIGHLIGHTS

Under the leadership of Dr. Carter, the division is awaiting final validation of a 1,300-gene pan-cancer RNA panel that will expand capacity to detect gene fusions in sarcomas, carcinomas and other solid tumours.

The division's Wellness and Green Healthcare Committee and AP Green Team advanced sustainable laboratory practices. In 2025, the AP lab achieved green-level certification through My Green Lab and platinum-level certification through Dalhousie's Sustainable Labs program. The team also secured a $25,000 CASCADES grant to develop a bilingual sustainable anatomical pathology playbook.

Division members remain active in provincial and national stewardship and environmental initiatives.

AWARDS

Dr. Thomas Arnason received the Dalhousie Medical School Silver Shovel Award. The graduating class presents this award to a professor who demonstrates dedication, compassion and commitment to medical students.

Hematopathology

CLINICAL FOCUS
The Division of Hematopathology continued to modernize several laboratory tests and services. For example, the Microscopy Laboratory used a machine-learning approach to review and refine the complete blood count (CBC) triggers and rules that initiate peripheral blood smear reviews used to screen for hematologic disorders. The optimized rule set eliminated nearly 20 per cent of unnecessary peripheral blood smear reviews, improving laboratory efficiency and turnaround time while allowing staff to focus more effectively on critical and urgent cases.

The HLA Laboratory also validated and implemented a state-of-the-art HLA typing method using the third-generation sequencing Nanopore platform. This technology improves the quality and resolution of HLA typing used to match patients and donors in Atlantic Canada requiring solid organ or stem cell transplantation, while reducing both turnaround time and cost.

EDUCATION ADVANCEMENTS
2025 was an active year for the Hematopathology Residency Training Program. The program welcomed Dr. Elizabeth Tingey, bringing the resident complement to four and further strengthening the division's commitment to postgraduate medical education. The division also secured funding approval for a new CaRMS match position for the 2026–27 academic year, ensuring continued training of hematopathologists to meet future clinical and laboratory needs.

The Hematopathology Fellowship Training Program, established in 2023 in partnership with Dalhousie University's Postgraduate Medical Education Office, continued to grow. Dr. Ibrahim Elsharawi joined the program to complete advanced training in hematopathology and expects to complete the fellowship in June 2026.

The division also welcomed Dr. Maha Al-Yahyai as a fellow in the HLA Director Fellowship Training Program, accredited by the American Society for Histocompatibility and Immunogenetics (ASHI). This program provides advanced training in histocompatibility testing, transplant immunology and HLA laboratory management, preparing fellows to lead high-complexity HLA laboratories.

RESEARCH DEVELOPMENTS
In 2025, the division validated and implemented a novel flow cytometry–based multiplex assay to measure antibody levels against ABO blood group antigens. The division's HLA Laboratory led the initiative in collaboration with the Transfusion Medicine Service and the local Multi-Organ Transplant Program. The project also involved collaborations with transplant centres in Vancouver and San Antonio, Texas, reflecting broad interest in improving methods for assessing ABO antibody levels in transplant candidates.

The assay offers several advantages over conventional serologic methods used worldwide to measure ABO antibodies in blood banks. The flow cytometry–based approach improves analytical accuracy and reproducibility while significantly increasing testing efficiency. It also requires only a fraction of the reagents and patient serum volumes used in conventional testing, making it both more resource-efficient and more sustainable for routine clinical use.

The laboratory has now implemented the assay clinically to support transplant decision-making within the Canadian National Kidney Paired Donation Program. By providing precise measurement of anti-A antibody levels, the test helps clinicians determine whether patients can safely undergo ABO-incompatible kidney transplantation.

Foundational Science

EDUCATION ADVANCEMENTS
The Department of Pathology's graduate program included 22 students at various stages of training in 2025. Graduate students play an important role in the department's research activities, contributing to laboratory-based studies, collaborative projects and knowledge generation across the discipline.

The department welcomed former postdoctoral fellow Dr. Nelly Amenyogbe as a faculty member in September. Jointly appointed to the Department of Microbiology & Immunology, she leads a research program focused on improving resilience to infectious diseases in early life, using multi-omic and bioinformatics approaches.

Five students successfully completed their program's required examinations for graduation. The high calibre of these trainees is reflected in the fact that 55 per cent held stipends or competitive awards. Graduate students in pathology continue to be highly competitive for external awards, reflecting both the quality of the trainees and the strength of the graduate program.

RESEARCH DEVELOPMENTS
Collaborative research within the Department of Pathology continues to foster productive partnerships among clinicians, basic scientists and community members, including patients and patient advocates. This multidisciplinary approach supports a strong research environment that integrates clinical insight with laboratory discovery.

These collaborations have supported studies that have attracted multi-year, multi-million-dollar funding and produced numerous publications in recognized scientific journals. Departmental research has also been featured across a range of media platforms, reflecting growing interest in advances emerging from pathology laboratories. Together, these efforts contribute to ongoing innovation in understanding disease and improving patient outcomes.

FUNDING AWARDS
Dr. Nelly Amenyogbe, four-year, $480,000 CIHR REDI Award
This project explores how colostrum protects newborns from sepsis, a serious infection affecting many preterm infants. Using a preclinical model and non-invasive monitoring approaches, this work aims to identify safe interventions for newborns who cannot receive colostrum, with the goal of improving survival and long-term health outcomes.

Dr. Jeanette Boudreau, $6 million Canadian Cancer Society Breakthrough Grant
This pan-Canadian initiative investigates how cancer cells enter a dormant state to evade treatment. Using immunologic model systems and molecular analysis, this research aims to identify strategies to eliminate these cells, with the goal of improving long-term cancer control.

Dr. Graham Dellaire, five-year, $335,00 NSERC Discovery Grant
This project aims to reveal how exonucleases—enzymes that trim and remove unwanted or damaged DNA—help maintain genome stability and regulate innate immune signalling. The findings will shed further light on inflammation, aging and cancer.

Dr. Greg Fairn, five-year, $1.2 million CIHR Project Grant, as well as his five-year, $335,000 NSERC Discovery Grant
These projects examine the role of lipids and membrane dynamics in cellular processes underlying innate immunity and host–pathogen interactions. Using advanced imaging and molecular approaches, this work aims to better understand how cells respond to infection, with potential implications for inflammatory disease and immune-mediated disorders.

Dr. Paola Marcato, $85,500 in startup funding
In her role as principal investigator and CEO of Theranib Inc., Dr. Marcato secured startup funding from several local agencies in 2025. This funding is supporting intellectual property development and early-stage commercialization of research discoveries from Dr. Marcato's lab, advancing the translation of these discoveries into new cancer therapies.

IWK CLINICAL WORKLOAD

2,071,423
TESTS

204,251
BLOOD COLLECTIONS

IWK Pathology & Laboratory Medicine

Clinical focus

The IWK Department of Pathology & Laboratory Medicine strengthened clinical services in 2025 through strategic leadership, modernization of testing platforms, provincial standardization, and expansion of specialized pediatric diagnostics.

ANATOMICAL PATHOLOGY

In early 2025, Ashley Lloy was appointed manager of Anatomical Pathology, Microbiology, and Quality & Patient Safety, strengthening operational leadership across key laboratory areas.

In anticipation of the retirement of Dr. Bob Fraser in 2026, workforce planning initiated recruitment for a pediatric and perinatal pathologist to ensure continuity of specialized services.

CLINICAL GENOMICS

Clinical Genomics achieved a major milestone by repatriating approximately 90 per cent of next-generation sequencing (NGS) panels previously referred to external laboratories. Targeted personnel support through the IWK Centre for Precision Medicine enabled this transition, improving turnaround times, strengthening local expertise and enhancing sustainability.

MICROBIOLOGY

The Microbiology & Molecular Diagnostics Program continued to provide provincial leadership through the Provincial Molecular Microbiology Working Group, building on IWK's pediatric molecular diagnostic expertise and internationally recognized laboratory standards. Initial work focused on standardizing diagnosis of central nervous system infections, including meningitis and encephalitis.

In response to ongoing and seasonal respiratory illness pressures, the laboratory maintained enhanced testing readiness for priority pathogens, including *Mycoplasma pneumoniae*, *Chlamydia pneumoniae* and *Bordetella pertussis*.

Targeted investment in molecular platforms, such as the DiaSorin LIAISON MDX (Simplexa) system and a second BD MAX instrument, expanded testing capacity and supported service optimization through workflow modernization. This allowed molecular methods to be applied to vaginitis testing, for example, improving diagnostic efficiency, consistency and turnaround times.

HEMATOPATHOLOGY

Hematopathology continued provincial standardization efforts by aligning local practices with provincial standard operating procedures. This improved consistency, reduced variation and supported patient safety across testing sites.

The division purchased and began validating the LAMP malaria assay, enabling faster and more sensitive detection. It also validated and implemented automated processes for identifying red blood cell antibodies, improving the efficiency of testing, consistency of results and timeliness of transfusion decisions.

PRE- AND POST-ANALYTICAL SERVICES

To support patient- and family-centred care, DPLM integrated a child life specialist into the outpatient laboratory to reduce anxiety during procedures and improve the patient experience. The team expanded Comfort Promise and child-kind initiatives to reinforce trauma-informed care and enhanced educational resources to help families better understand laboratory procedures.

DPLM also established regular monthly meetings between inpatient units and the laboratory to strengthen communication and collaborative problem-solving. The department expanded medical laboratory assistants' duties to include additional testing responsibilities, improving workflow flexibility. Stable team-lead coverage ensured leadership continuity during high-demand periods. The laboratory completed annual venous collection competencies without issue and increased use of feedback forms to promote open communication and continuous improvement.

BIOCHEMISTRY

The Division of Biochemistry advanced pediatric and maternal testing by applying a provincial lens to harmonization decisions for locally performed and referred-out assays, supporting a smoother transition to provincial information systems. The division aligned clinical order sets and utilization reviews with provincial standards.

In newborn screening, the team validated a second mass spectrometer and completed Phase II Neobase2 streamlining to support the planned expansion of congenital adrenal hyperplasia testing in 2026.

The point-of-care testing program completed the interfacing of all possible programs, marking a significant quality milestone.

Education advancements

Education remained a core academic mission across all divisions in 2025, supporting learners, staff and provincial partners.

CLINICAL GENOMICS

Under the leadership of Dr. Karen Bedard, the department developed and secured accreditation for a Canadian College of Medical Geneticists training program, becoming the 11th such program in Canada. This significantly expands training capacity in clinical genomics.

Introduction to Genetic Testing modules were developed on Virtual Hallway to support the safe and effective mainstreaming of genetic testing, a key component of the Nova Scotia Precision Medicine Plan, in response to increasing demand and prolonged wait times for medical genetics consultations. Through system-level discussions involving Pediatrics, Maritime Medical Genetics, the Clinical Genomics Laboratory and IWK executive leadership, education was identified as a critical enabler of improved access and efficiency, allowing select non-genetics specialists to order defined genetic tests directly.

Mainstreaming represents a significant practice change in a rapidly evolving and increasingly complex field and requires structured education to support appropriate test selection, interpretation and patient communication. Informed by ongoing needs assessment, clinician engagement, program committee expertise and published literature, the modules were designed to anticipate common questions, build clinician confidence, reduce downstream pressure on genetics and laboratory services, and meet continuing medical education standards. Future iterations will be guided by outcome metrics and identified learning gaps. In 2025, 16 health-care practitioners successfully completed the Dalhousie-accredited modules.

BIOCHEMISTRY

Dr. Lori Beach welcomed the department's first clinical biochemistry fellow for a pediatric rotation in collaboration with Memorial University of Newfoundland. She also expanded the BIOC4813/PATH5013 course offering, resulting in a more than 400 per cent increase in enrolment in 2025.

NBS technologists attended the Garrod Symposium and presented at the 2025 IWK Quality Summit on innovation in dried blood spot rejection criteria.

HEMATOPATHOLOGY

Staff in Hematopathology and Transfusion Medicine participated in national and international conferences, including the International Society for Laboratory Hematology, CSMLS Lab Con, the Canadian Society for Transfusion Medicine (CSTM), along with virtual education sessions provided by Nova Scotia's Blood Matters Conference and The Canadian Society for Transfusion Medicine (CSTM) to support ongoing professional development and maintain alignment with evolving standards and evidence.

ALL DIVISIONS
The department extended medical laboratory assistant (MLA) education to external hospitals across the province, with a focus on pediatric capillary collections and comfort techniques to promote consistent, high-quality pediatric care. It also reinforced MLA certification requirements to ensure all staff meet standardized competency expectations as licensed health-care professionals.

Research developments

DPLM researchers focused their efforts in support of precision medicine, laboratory innovation and health system improvement.

CLINICAL GENOMICS
In collaboration with Dr. Amy Trottier, the Clinical Genomics Laboratory advanced innovative methods using toenails as a source of germline DNA for patients at risk of hereditary hematologic malignancies. Sufficient DNA was successfully extracted to perform NGS panels on an exome backbone, demonstrating feasibility for less invasive sampling.

BIOCHEMISTRY
Dr. Lori Beach presented on expansion of pre-eclampsia testing at the Atlantic Pathology Conference and the IWK Regional Maternal-Fetal Medicine Retreat. She also published two peer-reviewed papers. Dr. Zaiping Liu published one paper and one CDA policy report. He also served as an expert member of the Health Technology Expert Review Panel for the CDA-AMC project on newborn screening of metachromatic leukodystrophy.

HEMATOPATHOLOGY
An MLT III Hematopathology staff member contributed to a *Journal of Obstetrics and Gynecology Canada* publication: "Guidance for Prenatal, Postnatal and Neonatal Immunohematology Testing in Canada: Consensus Recommendations from a Modified Delphi Process."

Other highlights of 2025

Departmental milestones reflected innovation, quality improvement and community engagement.

ANATOMICAL PATHOLOGY
Anatomical pathology received a $100,000 donation from the IWK's founding pathologist, Dr. Vern Krause, in celebration of his 100th birthday. The funds will support acquisition of a Grundium digital slide scanner and robotic microscope, representing the department's first investment in digital pathology infrastructure.

CLINICAL GENOMICS/IWK PRECISION MEDICINE
The IWK Centre for Precision Medicine co-presented the 2025 Atlantic Precision Medicine Conference in November, strengthening regional collaboration and knowledge exchange in genomic and precision-based health care.

HEMATOPATHOLOGY
The CELLFiE Project continued to grow, launching a public-facing website, enhancing and expanding its online physician portal, and forming new partnerships with P2 Intelligence and CellaVision, with ongoing fundraising support from the IWK Foundation. The CELLFiE Project also launched a campaign to encourage people to make and donate crocheted blood cells for the project to gift to children. Hematopathology laboratory staff enthusiastically supported this effort, which was featured on Global News.

BIOCHEMISTRY
Biochemistry developed and launched a robust risk-identification and mitigation register and made improvements to its change management and process workflows. This included ongoing development of the IDEAS register under DPLM Delivers.

Awards

Dr. Victor Martinez received the 2025 IWK Research Award.

Ryan Fraser, MLT III, received the 2025 Medical Technologist/Technician Award for Continuing Professional Development from the Canadian Association of Pathologists.

NB CLINICAL WORKLOAD

4,000,000

TESTS

New Brunswick

Clinical focus

The pathology laboratory at the Saint John Regional Hospital (SJRH) serves patients across southwestern New Brunswick, performing more than four million tests annually. The laboratory is staffed by more than 125 medical laboratory technologists and assistants, along with 10 pathologists, two hematopathologists, a molecular pathologist, a clinical chemist, and two medical microbiologists.

Like many laboratories across the country, the SJRH lab continues to operate in a constrained funding environment. Parent organization Horizon Health, in collaboration with the province's other regional health authority, Vitalité Health Network, has established focus groups to identify opportunities for pooling laboratory resources across the province to streamline operations and improve efficiency. Local administrators, lab physicians and scientists are key players in guiding these changes. Their close involvement is intended to prevent disruptive strategies and unintended harmful consequences that sometimes ensue when changes are structured by external consultants.

Changes in service delivery are also underway. The transition from primary cytology to primary HPV testing in cervical cancer screening is expected to free up technologist capacity, allowing staff to be retrained and redeployed to other areas of growing demand within the laboratory.

Education advancements

SJRH continues to serve as a training site for undergraduate medical students at Dalhousie Medicine New Brunswick. In addition to senior medical students, the Division of Anatomical Pathology has expanded its training role to include first-year residents through community-based rotations, strengthening early exposure to pathology practice in a regional setting.

Other highlights

As noted in the previous year's report, the laboratory successfully implemented optical genome mapping technology for the genotyping of hematologic malignancies, replacing several costly and time-intensive tests and improving efficiency.

The stem cell laboratory, in collaboration with the Department of Oncology at SJRH, became the first site in the province approved to deliver CAR T-cell therapy. This form of immunotherapy uses a patient's own immune cells to fight cancer by reprogramming them to recognize and attack cancer cells throughout the body, expanding access to advanced treatment options for patients in New Brunswick.

OUR FACULTY

Dr. Alaa Abdelrazik
Dr. Behram Cenk Acar
Dr. Nelly Amenyogbe
Dr. Tom Arnason
Dr. Heleen Arts
Dr. Penelope Barnes
Dr. Lori Beach
Dr. Karen Bedard
Dr. Gillian Bethune
Dr. Veni Bharti
Dr. Jeanette Boudreau
Dr. Ihssan Bouhtiauy
Dr. Robert Boutilier
Dr. Matthew Bowes
Dr. Jo-Ann Brock
Dr. Martin Bullock
Dr. Hakan Buyukdere
Dr. Michael Carter
Dr. Mathieu Castonguay
Dr. Yu Chen
Dr. Cal Cheng
Dr. David Conrad
Dr. Sidney Croul
Dr. Lisandra Cubero Herrera
Dr. Kelly Dakin Hache
Dr. Ross Davidson
Dr. Ian Davis
Dr. Ryan DeCoste
Dr. Nicole Delaney
Dr. Graham Dellaire
Dr. Tsetan Dolkar
Dr. Alexander Easton
Dr. Mojgan Ebrahimi
Dr. Allison Edgecombe
Dr. David Edwards
Dr. Sameh El Bailey
Dr. Manal Elnenaei
Dr. Somayyeh Fahiminiya
Dr. Greg Fairn
Dr. Jennifer Fesser
Dr. Ashlyn Fong
Dr. Bob Fraser
Dr. Daniel Gaston
Dr. Laurette Geldenhuys
Dr. Tanya Gillan
Dr. Marek Godlewski
Dr. Anna Greenshields
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Dr. Jennette Gruchy
Dr. Shashi Gujar
Dr. Todd Hatchette
Dr. David Hoskin
Dr. Mohammad Hossain
Dr. Yossry Hussein
Dr. Thomas Issekutz
Dr. Doha Itani
Dr. Jason Jollimore
Dr. Dae Tong Kim
Dr. Mariya Kuk
Dr. Jason LeBlanc
Dr. Patrick Lee
Dr. Zaiping Liu
Dr. Robert Liwski
Dr. Amy Lou
Dr. Thai Ly
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Dr. Kathryn McFadden
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Dr. Erik Mont
Dr. Phillip Moss
Dr. Patrick Murphy
Dr. Shawn Murray
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Dr. Bassam Nassar
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Dr. Ken Obenson
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Dr. Zhaolin Xu
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OUR RESIDENTS AND FELLOWS

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Dr. Angela Cheng
Dr. Alexandra Eaton
Dr. Mariam El-Serafi
Dr. Caroline Guinard
Dr. Aleksandra (Ola) Kajetanowicz
Dr. John Loggie
Dr. Allison Maybank
Dr. Rumana Rafiq
Dr. Sarah Sutherland

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Dr. Simon Farquharson
Dr. Stephanie Hollett
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Dr. Nafisa Shandi
Dr. Lauren Wotton

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Dr. Christopher Liwski
Dr. Laura Rodriguez Torres
Dr. Elizabeth Tingey
Dr. Ibrahim Elsharawi (HP)
Dr. Maha Al-Yahyai (HLA)
Dr. Noof Mathkor (HLA)

Medical Microbiology
Dr. Ziyad Allehebi
Dr. Reema Alabdulqader
Dr. Emad Balubaid

OUR POSTDOCTORAL FELLOWS

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Dr. Unnikrishnan Babukuttan Sheela
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Dr. Ehab Ezzaldeen
Dr. Sameera Fernando
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Dr. Perryn Kruth
Dr. Michael Salsaa
Dr. Vishnu-Vijay Vijayan
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Michelle Sampson
Dr. Rashmi Shah
Dr. Jaganathan Venkatesh
Dandan Zhao

OUR GRADUATE STUDENTS

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Arezoo Afshari
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Avery Cook
Lara Crone
Ana Faustova
Alex Gibson
Bakhmala Khan
Anna Nicolela
Mika Park
Harshita Pasumarthi
Kathryn Taylor
Kennedy Whelan

PhD
Riley Arseneau
Hannah Cahill
Melis Erkan
Mark Hanes
Vishnupriyan Kumar
Leah MacLean
Maya MacLean
Noah Martin
Teresa McMillen
Gillian Okura
Morgan Pugh-Toole
Peter Robertson
Olivia Walker

ANNUAL DEPARTMENT AWARD WINNERS

THOMAS ARNASON PATHOLOGY PRIZE
Neal Callaghan

DR. WENDA GREER PRIZE FOR RESEARCH EXCELLENCE
Dr. Sabateeshan Mathavarajah

ATOM AWARD
Dr. Raj Pranap Arun

RESIDENT TEACHING AWARD
Dr. Aleksandra Kajetanowicz
Dr. Ibrahim Elsharawi

PATH FORWARD COLLABORATION AWARD
Dr. Thomas Arnason

BEST PAPER AWARD
Dr. Ibrahim Elsarawi
Dr. Amy Lou

DAVID JANIGAN TEACHING AWARD
Dr. Daniel Gaston
Dr. Meghana Toal

DAVID JANIGAN TEACHING AWARD FOR TRAINEES
Dr. Allison Maybank (Clinical)
Dr. Raj Pranap Arun (Basic Science)

AWARD FOR EXCELLENCE IN CLINICAL SERVICE
Dr. Zhaolin Xu

LIFETIME ACHIEVEMENT AWARD
Dr. Martin Bullock

POST-DOC FELLOW TRAVEL AWARD
Dr. Raj Pranap Arun

GUPTA TRAVEL AWARD
Dr. Alexander Rudiuk
Dr. Caroline Guinard

DALHOUSIE
UNIVERSITY